

REMARKS

Claims 1-15, all the claims pending in the application, stand rejected. Claims 1-15 are cancelled. New claims 16-24 are added..

Support for Amendment

New claim 16 is based on the description of the original claim 2 and the disclosure in paragraphs (0015) and (0017) of the original specification.

New claim 17 is based on the description in paragraph (0013) of the original specification and the original claim 13.

New claim 18 is based on original claim 4.

New claim 19 is based on the description of the paragraph (0023) (lines 10 to 12) of the original specification and original claim 6.

New claim 20 is based on original claim 5 and the disclosure in paragraph (0023), lines 1 to 9 of the original specification.

New claim 21 is based on original claims 6 and 7, and the description in paragraph (0025) and paragraph (0023).

New claim 22 is based on the description in paragraph (0035) “LUL durability test”.

New claims 23 and 24 are based on the description in paragraph (0030), “LUL Durability Test”, the description in paragraph (0034), “Example 2” and paragraph (0035), “Example 3” of the original specification.

Claim Rejections - 35 USC § 102

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Calloni (EP 214672 A2). This rejection is moot in view of the cancellation of the claims.

Claims 1-3 and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimokawa (JP 2002-25046). This rejection is moot in view of the cancellation of the rejected claims.

Claim Rejections - 35 USC § 103

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimokawa in view of Fomblin Z Derivatives—Product Data Sheet ("Fomblin", <http://www.solvaysolexis.com/static/wma/pdf/5/4/3/4/fomth in .pdf>). This rejection is moot in view of the cancellation of the rejected claim.

Claims 7-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida (US PG Pub. No. 2003/0175470). This rejection is moot in view of the cancellation of the rejected claims.

New Claims

Applicants have redrafted the rejected claims in order to clarify and distinguish the claimed invention from the prior art cited by the Examiner.

Claim Correspondence

New claims 16-18 are a replacement for rejected claims 1-4, where are directed to “a method for producing a lubricant.

New claims 19, 20 and 24 are a replacement for rejected claims 5, 6 and 11-13, which are directed to “a lubricant for use in manufacturing a magnetic disk.”

New claims 21-23 are a replacement for rejected claims 7, 8, 14 and 15, which are directed to a magnetic disk.

Distinctions Over Cited Prior Art

Calloni

Calloni discloses a process for the purification of perfluoropolyether oils, as pointed out by the Examiner. In addition, an optional degassing process is carried out to remove volatile products by blowing an inert gas such as nitrogen into the oil and is followed by a filtration step carried out as the purification process.

Filtration Step Has **NO** Vaporizing, Purification and Combination

In Calloni the filtration step is carried out by using a filter of a tangential-flow type so as to remove solids (page 3, lines 1 to 3). The filter of the tangential-flow type has a filter surface with very small pores which serve to achieve a complete separation of the smallest solid particles (page 3, lines 6 to 9). As a result, the liquid to be filtered is passed onto the filter surface at high speed (page 3, lines 3 to 4).

From this fact, it is readily understood in Calloni that the filtration step is performed by allowing the liquid to pass through the filter surface.

In other words, there is no teaching at all in Calloni about either (1) carrying out a vaporizing step after the degassing step or (2) performing a purification step after the vaporizing step. Moreover, there is no disclosure at all in Calloni about (3) purifying a vaporized lubricant into a liquid.

In sum, Calloni is silent about a method comprising a combination of a degassing process, a vaporizing process, and a purification process of liquefying a vapor into a liquid.

Claim 16

In marked contrast, the method defined by new claim 16 is focused on the method which comprises the combination of the degassing process, the vaporizing process, and the purification process.

In addition, the vapor of the lubricant is liquefied within a distance less than a mean free path of the lubricant vapor molecules, as stated in new claim 16. This method is called molecular distillation and makes it possible to accomplish high distillation efficiency (the English text, page 11, the paragraph (0018)).

Accordingly, Applicants respectfully submit that the method according to the new claim 16 is completely different from Calloni in that the method according to the new claim 16 differs from Calloni in structural processes and their merits and is novel and is not obvious from Calloni.

Claims 17 and 18

These claims would be patentable for reasons given for parent claim 16, based on the foregoing points.

Claims 19 and 21

These claims are directed to a lubricant for use in manufacturing a magnetic disk and the magnetic disk itself.

NO Minimum Content as Claimed

Calloni does not disclose a lubricant wherein a content of perfluoropolyether is greater than 85% when it is measured by nuclear magnetic resonance spectroscopy.

Claims 20 and 22-24

These claims would be patentable for reasons given for parent claims 19 and 21, based on the foregoing points.

Shimokawa

Shimokawa discloses a method of refining a commercial perfluoropolymer as a lubricant by the use of gel permeation chromatography (GPC), supercritical fluid chromatography (SFC), ultrafiltration, filtration under reduced pressure, supercritical chromatography, and column chromatography to accomplish a weight-average molecular weight (Mw) between 2000 and 1200 and a molecular weight distribution less than 1.3, preferably, 1.1 (paragraphs 0005 and 0006).

Claim 16

As previously noted, claim 16 includes a (1) degassing step, (2) a vaporizing step and (3) a purifying step that involves liquefying perfluoropolyether molecules.

NO Vaporizing, Degassing and Combination

However, there is no teaching in Shimokawa about the necessity of degassing and vaporizing steps.

NO Liquefying Step

In addition, Shimokawa does not teach a process of liquefying the perfluoropolyether molecules within a mean free path of the molecules. In other words, Shimokawa is completely silent about considering a mean free path of perfluoropolyether molecules.

Claims 17 and 18

These claims would be patentable for reasons given for parent claim 16, based on the foregoing points.

Claims 19 and 21

NO Minimum Content as Claimed

Shimokawa does not disclose a lubricant wherein a content of perfluoropolyether is greater than 85% when it is measured by nuclear magnetic resonance spectroscopy.

Claims 20 and 22-24

These claims would be patentable for reasons given for parent claims 19 and 21, based on the foregoing feature of the lubricant.

Ishida

Ishida discloses a lubricant formed by perfluoropolyether.

Claims 16, 19 and 21

There is no disclosure at all in Ishida about necessity of degassing, vaporizing, and liquefying perfluoropolyether so as to obtain perfluoropolyether which has a content not smaller than 85%.

Claims 17, 18, 20 and 22-24

These claims would be patentable for reasons given for parent claims 16, 19 and 21, based on the foregoing points.

Fomblin

The teachings of Fomblin do not remedy the deficiencies of any of Calloni, Shimokawa, and Ishida.

Conclusions

Applicants respectfully submit that the lubricant according to the new independent claims 16, 19 and 21 are both novel and unobvious with respect to all of Calloni, Shimokawa, and Ishida. Inasmuch as the new claims 17, 18, 20, 22, 23 and 24 depend from the new claims 16, 19 or 21 directly or indirectly, they are also patentable.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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23373

CUSTOMER NUMBER

Date: June 7, 2010

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